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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,024	03/26/2001	Satyanarayana Nishtala	SUN-P5569-RJL	2204

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EXAMINER	
MANOSKEY, JOSEPH D	
ART UNIT	**PAPER NUMBER**
2113	8

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/818,024	NISHTALA, SATYANARAYANA	
	Examiner	Art Unit	
	Joseph Manoskey	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-8,10,11,13-15,17,18,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6-8,10,11,13-15,17,18,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Amendment B, pages 7 and 8, filed February, 27 2004, with respect to the rejection(s)of claim(s) 1, 3, 4, 6-8, 10, 11, 13-15, 17, 18, 20, and 21 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new found prior art, see rejection below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 4, 6-8, 10, 11, 13-15, 17, 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greiner, U.S. Patent Application Publication U.S. 2002/0157062, hereinafter referred to as "Greiner", in view of Rodriguez, U.S. Patent Application Publication U.S. 2002/0087921, hereinafter referred to as "Rodriguez", and Carotti et al., U.S. Patent 6,704,890, hereinafter referred to as "Carotti".

3. Referring to claim 1, Greiner discloses an apparatus for detecting errors on a multi-pumped bus (See page 1, paragraph 2), this is interpreted as a source synchronous bus (See page 4, paragraph 58). The source synchronous bus has a plurality of data lines, a clock line (the strobe lines are interpreted as a clock line for the source synchronous bus), a transmitting mechanism, a receiving mechanism, and an error detecting mechanism (See Fig. 5b). Greiner teaches the parity circuit checking for errors (See page 2, paragraph 29). Greiner teaches a grouping mechanism with the transmitting mechanism configured to group the data bits into error groups and a detection code generating for each group. Greiner teaches data groupings and parity outputs created for each grouping (See page 10, paragraph 115). Greiner also discloses that the detection code being transmitted using a clock cycle other than the clock cycles for transmitting the data (See page 10, paragraph 122). Greiner discloses the data bits being skewed across time, he teaches the data group being split up among the phases of the transmission (See page 10, paragraph 115). Greiner does not disclose that the error detecting mechanism can detect errors caused by an error on the clock line, however Greiner does disclose increasing the bus throughput by increasing the rate to higher frequency. Greiner also does not teach each bit being transmitted at a different time so that no two bits of the error group are transmitted at the same time, however Greiner does disclose the desire to reduce timing skew (See Col. 6, lines 1-4). Rodriguez teaches detecting errors in a source synchronous bus that has strobe logic containing glitch detection for the strobe or "bus clock" line (See Fig. 1 and page 2, paragraph 21). Carotti discloses using a serializer and deserializer (See Fig. 8) that permanently skews the data and thus having no timing significance between any data

bits, this is interpreted as no two bits of the group being transmitted at the same time (See Col. 4, lines 28-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the strobe logic of Rodriguez and the serializer and deserializer of Carotti with the source synchronous bus of Greiner. This would have been obvious to one of ordinary skill in the art at the time of the invention to do because it increases the reliability, especially for problems that are prone to high-speed connections (See Rodriguez, page 1, paragraph 4) and the because the system can tolerate any amount of skew without loss of data (See Carotti, Col. 4, lines 34-40).

4. Referring to claims 3 and 4, Greiner, Rodriguez, and Carotti disclose all the limitations (See rejection of claim 1) including the detection code being a parity bit or an error correcting code (See Greiner page 1-2, paragraph 23).

5. Referring to claims 6 and 7, Greiner, Rodriguez, and Carotti disclose all the limitations (See rejection of claim 1) including the data bits being skewed across time. Greiner discloses the data group being split up among the phases of the transmission (See page 10, paragraph 115). Greiner teaches the data being skewed based on the position of the data bits (See page 10, paragraph 115 and Fig. 8 and 9). Greiner also teaches a gathering mechanism with the receiving mechanism that de-skews the data bits (See Fig. 9).

6. Referring to claim 8, Greiner discloses a method for detecting errors on a multi-pumped bus (See page 1, paragraph 2), this is interpreted as a source synchronous bus

(See page 4, paragraph 58). The source synchronous bus has a plurality of data lines, a clock line (the strobe lines are interpreted as a clock line for the source synchronous bus), transmitting data, receiving data, and detecting errors (See page 6, paragraphs 75 and 76). Greiner discloses grouping data bits into error groups and generating detection code for each group. Greiner teaches data groupings and parity outputs created for each grouping (See page 10, paragraph 115). Greiner also discloses that the detection code being transmitted using a clock cycle other than the clock cycles for transmitting the data (See page 10, paragraph 122). Greiner discloses the data bits being skewed across time, he teaches the data group being split up among the phases of the transmission (See page 10, paragraph 115). Greiner does not disclose detecting errors caused by an error on the clock line, however Greiner does disclose increasing the bus throughput by increasing the rate to higher frequency. Greiner also does not teach each bit being transmitted at a different time so that no two bits of the error group are transmitted at the same time, however Greiner does disclose the desire to reduce timing skew (See Col. 6, lines 1-4). Rodriguez teaches detecting errors in a source synchronous bus by detecting glitches on the strobe or "bus clock" line (See Fig. 1 and page 2, paragraph 21). Carotti discloses using a serializer and deserializer (See Fig. 8) that permanently skews the data and thus having no timing significance between any data bits, this is interpreted as no two bits of the group being transmitted at the same time (See Col. 4, lines 28-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the detecting of glitches on the strobe line of Rodriguez and the serializer and deserializer of Carotti with the method of detecting errors on a source synchronous bus of Greiner. This would have been obvious to one

of ordinary skill in the art at the time of the invention to do because it increases the reliability, especially for problems that are prone to high-speed connections (See Rodriguez, page 1, paragraph 4) and the because the system can tolerate any amount of skew without loss of data (See Carotti, Col. 4, lines 34-40).

7. Referring to claims 10 and 11, Greiner, Rodriguez, and Carotti disclose all the limitations (See rejection of claim 8) including the detection code being a parity bit or an error correcting code (See Greiner page 1-2, paragraph 23).

8. Referring to claims 13 and 14, Greiner, Rodriguez, and Carotti disclose all the limitations (See rejection of claim 8) including the data bits being skewed across time. Greiner discloses the data group being split up among the phases of the transmission (See page 10, paragraph 115). Greiner teaches the data being skewed based on the position of the data bits (See page 10, paragraph 115 and Fig. 8 and 9). Greiner also teaches gathering and de-skewing the data bits (See page 10, paragraph 115).

9. Referring to claim 15, Greiner discloses a computing system for detecting errors on a multi-pumped bus (See page 1, paragraph 2, and Fig. 1), this is interpreted as a source synchronous bus (See page 4, paragraph 58). The source synchronous bus has a plurality of data lines, a clock line (the strobe lines are interpreted as a clock line for the source synchronous bus), a processor as a transmitting mechanism, a memory unit as receiving mechanism, and an error detecting mechanism coupled to the memory unit (See Fig. 1). Greiner teaches the parity circuit checking for errors (See page 2,

paragraph 29). Greiner teaches a grouping mechanism with the transmitting mechanism configured to group the data bits into error groups and a detection code generating for each group. Greiner teaches data groupings and parity outputs created for each grouping (See page 10, paragraph 115). Greiner also discloses that the detection code being transmitted using a clock cycle other than the clock cycles for transmitting the data (See page 10, paragraph 122). Greiner discloses the data bits being skewed across time, he teaches the data group being split up among the phases of the transmission (See page 10, paragraph 115). Greiner does not disclose that the error detecting mechanism can detect errors caused by an error on the clock line, however Greiner does disclose increasing bus throughput by increasing the rate to higher frequency. Greiner also does not teach each bit being transmitted at a different time so that no two bits of the error group are transmitted at the same time, however Greiner does disclose the desire to reduce timing skew (See Col. 6, lines 1-4). Rodriguez teaches detecting errors in a source synchronous bus that has strobe logic containing glitch detection for the strobe or clock line (See Fig. 1 and page 2, paragraph 21). Carotti discloses using a serializer and deserializer (See Fig. 8) that permanently skews the data and thus having no timing significance between any data bits, this is interpreted as no two bits of the group being transmitted at the same time (See Col. 4, lines 28-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the strobe logic of Rodriguez and the serializer and deserializer of Carotti with the source synchronous bus of Greiner. This would have been obvious to one of ordinary skill in the art at the time of the invention to do because it increases the reliability, especially for problems that are prone to high-speed

connections (See Rodriguez, page 1, paragraph 4) and the because the system can tolerate any amount of skew without loss of data (See Carotti, Col. 4, lines 34-40).

10. Referring to claims 17 and 18, Greiner, Rodriguez, and Carotti disclose all the limitations (See rejection of claim 15) including the detection code being a parity bit or an error correcting code (See Greiner page 1-2, paragraph 23).

11. Referring to claims 20-21, Greiner, Rodriguez, and Carotti disclose all the limitations (See rejection of claim 15) including the data bits being skewed across time. Greiner discloses the data group being split up among the phases of the transmission (See page 10, paragraph 115). Greiner teaches the data being skewed based on the position of the data bits (See page 10, paragraph 115 and Fig. 8 and 9). Greiner also teaches a gathering mechanism with the receiving mechanism that de-skews the data bits (See Fig. 9).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following is another example of prior art that discloses skewing for transmission on a bus.

U.S. Patent 6,697,974 to Craft

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Manoskey whose telephone number is (703) 308-5466. The examiner can normally be reached on Mon.-Fri. (8am to 4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JDM
May 20, 2004

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